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Natural Sciences and Engineering Research Council of Canada

Contact

Investing in people, discovery and innovation

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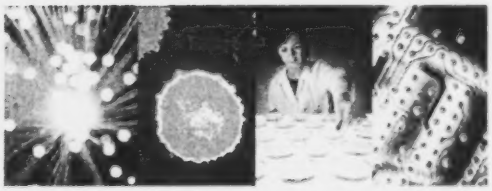

NSERC
CRSNG

The Sciences That Look After Our Health

Editorial by Suzanne Fortier, President of NSERC, and Alan Bernstein, President of the Canadian Institutes of Health Research (CIHR)

Suzanne Fortier

Alan Bernstein, O.C.

October was Breast Cancer Awareness Month, an appropriate time to reflect on where we've been and where we're going. A generation ago, breast cancer was never discussed publicly. Today, it is rightly a badge of courage and of solidarity. Twenty-five years ago, radical surgery or mastectomy was commonplace. Today, earlier and better diagnosis, less invasive surgery, improved chemotherapy, better nausea control, more precise radiotherapy and an appreciation of the importance of palliative care and psycho-social support for the patient and her family are now in place. Herceptin and other new drugs on the horizon are heralding a new era in cancer control-treatment based on knowing the molecular basis for the disease in the individual patient.

How did all this happen and what does the future hold?

While various types of medical imaging have been around for a long time, recent advances are nothing short of astounding. MRI, PET and CT are now acronyms that have made their way into our everyday vocabulary. They are among the sophisticated tools we rely upon to assess our health, to detect disease early and to guide in planning the source of medical interventions, if needed. Soon, gene chips and microarrays will be routinely added to these tools, underpinning a personalized approach to treatment and prediction of outcome.

The development of these new technologies is worth understanding, as it provides perfect examples of the importance of research, the synergies between the sciences, and the challenges of translating new science into the real world.

(continued on page 2)

The Natural Sciences and Engineering Research Council (NSERC) is a key federal agency investing in people, discovery, and innovation. It supports both basic university research through research grants, and project research through partnerships among postsecondary institutions, government and the private sector, as well as the advanced training of highly qualified people.

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Continued from cover page

It all starts at the fundamental level, whether motivated by the urge to understand the structure of matter, or a desire to understand how living organisms "work" or to treat disease. It then moves forward, almost always with the involvement of the private sector, towards application. It is not surprising that Nobel Prizes in both the physical sciences – physics and chemistry – and in medicine have been awarded to the pioneers in these areas, and that applications to human health are blind to the academic disciplines involved. Despite these advances, this year more than 22,000 Canadian women will still be told they have breast cancer and 5,300 of them will still die of their disease. So, we need to do more and we need to work as a team. For example, the new diagnostic technologies referred to above – technologies that have and will transform health care – have been developed through the collaborative efforts of physicists, chemists, engineers, mathematicians, biologists, geneticists, clinicians, the private sector and the patients who participate in early stages of development.

The development of new drugs and surgical procedures, better management of the negative side effects, and shortening of the time needed for recovery are also examples of knowledge transfer in action, putting research into action. The new generation of "designer" drugs for cancer (and soon other diseases) – drugs that promise to be more effective, with less toxic side effects – all depend on the combined efforts of a diverse group of researchers across many disciplines working with clinicians, ethicists, patients, and the private sector. These are the kind of powerful collaborations and new partnerships urgently needed to accelerate advances in the treatment of disease and the prevention of illness in the first place.

The current revolution in cancer research is a perfect example of the profound scientific advances that are now taking place, advances that are leading to new ways of diagnosing, treating, and preventing cancer. Canadian cancer researchers are internationally known for their landmark discoveries – the discovery of normal and cancer stem cells, powerful new insights into how cancer genes give rise to cancer, new approaches to radiation and drug therapy, and innovative advances in diagnostic imaging. Future advances will, even more than in the past, require broad, multi-disciplinary and multi-sectoral collaborations and new kinds of partnerships between researchers, policy makers and caregivers, the private sector, and the public.

For Canadians to benefit from the global effort to eradicate breast cancer and other diseases, we must articulate a bold and ambitious vision for research, a vision that recognizes that research is the engine of innovation in our health system and in our economy. In turn, our universities and research hospitals must continue to embrace a problem-based, entrepreneurial approach to important scientific questions that recognizes that some of the most important questions in science and health are situated at the boundaries between disciplines and between academia and society. And, the funders of research, agencies like the Natural Sciences and Engineering Research Council of Canada (NSERC) and the Canadian Institutes of Health Research (CIHR), which we have the privilege to lead, must provide innovative ways for our researchers to collaborate with each other, with the private sector, and with the health system.

Like so many other Canadians, we have both learned the urgency of the problem at a personal level. For us, this is motivation enough.

Editor's Note: This article appeared in The Globe and Mail on-line on Tuesday, October 24, 2006.

Winnipeg Hosts 2006 Synergy and Innovation Awards Gala

University - Industry Synergy

NSERC honoured the winners of the 2006 Synergy Awards for Innovation and the 2006 Innovation Challenge during a gala dinner held October 16 in Winnipeg.

The Synergy Awards have been awarded since 1995 to recognize outstanding examples of research and development partnership between universities and industry. The university partner receives a $25,000 research grant while the industry partner is presented with a prestigious sculpture.

The Innovation Challenge Awards have been presented since 2004 to graduate students for proposals aimed at commercializing the results of their thesis work. The winner of the Innovation Challenge receives a $10,000 prize, while each runner-up wins $5,000.

This year's winners are:

Small and Medium-Sized Companies category

Université de Sherbrooke with Tekna Plasma Systems Inc.

For the development and marketing of innovative induction plasma torch systems for use in various industrial processes.

École Polytechnique de Montréal with ITRIM Technologies Inc.

For the development of a unique laser-based technology for fine-tuning high-performance analog integrated circuits.

Large Companies category

Concordia University with Bell Helicopter Textron Canada Ltd.

For major innovations in the use of composites in aircraft engineering.

University of British Columbia with Angiotech Pharmaceuticals Inc.

For their work to develop controlled-release drug delivery systems and drug-loaded medical devices.

Two or More Companies category

McGill University with Nortel, TELUS Communications Inc., JDS Uniphase Corp., BTI Photonic Systems Inc. and Anritsu Electronics Ltd.

For advances resulting from their collaboration in the Agile All-Photonic Networks, which researches the development of ultra-high bit-rate optical networks.

(from left) Leo Derikx, the former Director General of Research Partnerships at NSERC who helped create the Synergy awards, is shown with Garth Issett (IBM Canada), Kelly Lyons (IBM Canada), Johnny Wong (University of Waterloo) and Jacob Slonin (IBM Canada), representing the Leo Derikx Award winners.

University of Regina with the International Test Centre for Carbon Dioxide Capture (ITC): EnergyINet, SaskPower, EnCana, HTC Purenergy, E-On, Saudi Aramco, the Research Institute of Innovative Technology for the Earth, the Alberta Energy Research Institute, Neill & Gunter, Babcock & Wilcox, Natural Resources Canada, Saskatchewan Industry & Resources

For their leadership in developing world-class technologies to reduce industrial carbon dioxide emissions.

Leo Derikx Award

Carleton University, Dalhousie University, McGill University, Queen's University, the University of Alberta, the University of British Columbia, the University of Calgary, the University of Toronto, the University of Victoria, the University of Waterloo, The University of Western Ontario and York University with IBM Canada

For their collaboration in the IBM Center for Advanced Studies, an innovative model of university-industry partnership.

Innovation Challenge

Dragan Tubic (winner)

For his proposal to develop and commercialize improvements in computerized three-dimensional modelling.

Elizabeth Gray (runner-up)

For the discovery of the bacteriocin Thuricin 17 and her proposal to develop and commercialize it as a novel, strain-specific antibiotic and food preservative.

Lucien Junior Bergeron (runner-up)

For his proposal to develop and commercialize a gene-inactivation system that can target specific RNA sequences at the cellular level.

Eleven students received honourable mention in the Innovation Challenge:

Daryoosh Saeedkia, Yingwei Xiang, Behraad Bahreyni, Farid Mobasser, Dominic Deslandes, Yunfei Chen, Fiorenzo Vetrone, Babak Jajuee, Christopher Cole, Kerry Robinson, and Benoit Châtelain.

News from the Regions

New Manager for NSERC-Atlantic

Patrice Audy

In September, Dr. Patrice Audy took up his responsibilities as Manager of NSERC-Atlantic, located in Moncton, N.B.

As a former recipient of many NSERC scholarships and a past selection committee member on several NSERC Scholarships and Fellowships committees, Dr. Audy is very familiar with NSERC's programs. He came to NSERC from Agriculture and Agri-Food Canada in Fredericton, N.B., where he worked in laboratory-industry-university collaborations and on the management of intellectual property.

Dr. Audy manages the activities of the regional office in Atlantic Canada, as well as the human, material and financial resources required to operate the office. He is working with clients, stakeholders, and federal, provincial and local agencies to increase NSERC's visibility and presence in the region.

NSERC-Prairies

Canada-Japan Science and Technology 20th Anniversary Symposium "Bringing Science to Life through Commercialization"

Ray Hoemsen, Visiting Executive/Manager of NSERC-Prairies, presented and took part in a panel discussion at the Embassy of Canada in Tokyo on September 13th concerning "*Accelerating the Commercial Development of Promising Technology*." Fellow panelists included Dr. Pierre Coulombe, President, National Research Council of Canada; Mr. Hiroshi Nagano, Executive Director, Japan Science and Technology Agency; and Mr. Masanori Yoshikai, Vice-President of Japan's National Institute of Advanced Industrial Science and Technology. Over 140 participants from the Japanese science community sector as well as businesses utilizing new technology and research and development took part in the all-day symposium. This event, which celebrated the 20th year of S&T collaboration under the Canada-Japan Science and Technology agreement, was part of a week of S&T-based activities that included a Science and Technology in Society Forum in Kyoto, a seminar on biotechnology, and participation in BioJapan activities in Osaka.

Staff Update

Kristin Braginetz, a Professional Writing student from Algonquin College in Ottawa, has joined the NSERC-Prairies team one day a week and is working from the Ottawa office as a Communications Assistant. Welcome, Kristin!

Student Poster Competition

NSERC-Prairies, along with the University of Winnipeg's Faculty of Science and Research Office, sponsored the University's first-ever Student Poster Competition for undergraduate students. The winners were Physics students Gina Passante and Dave Ostapchuck for the poster for their project entitled "Measuring Entanglement with a Ruler." Both students graduated with honours this year. Gina is attending Oxford University while Dave is at the University of Waterloo. NSERC-Prairies would like to congratulate all the participants on a job well done.

Pam Giberson

NSERC-Pacific

Staff Update

NSERC-Pacific has grown since the June edition of *Contact*, in which Rick Warner was introduced as Manager. In October, Pam Giberson and Megan Griffith joined him in the office, which is located in Vancouver.

Pam is the Research Development and Promotion Officer. She holds a Ph.D. in Toxicology and has worked for the past decade in B.C.'s biotechnology industry, including founding a bioreagent company.

Megan is the Administrative Officer. She has her B.A. in French and Linguistics and most recently worked for Indian and Northern Affairs Canada in British Columbia.

With staffing complete, NSERC Representatives appointed in each NSERC-eligible institute in British Columbia and the Yukon, and an Advisory Committee established, NSERC-Pacific looks forward to its official opening early in the new year and serving NSERC's clients in the region.

Financial Review Benefits Other Researchers

Every year around this time, NSERC reviews large balances remaining in grant accounts to ensure that the release of funds to researchers matches, as closely as possible, the actual cash flow requirements.

Researchers who are contacted and asked to either defer their next instalment, or justify the need for its release, should be aware that deferring an instalment does not adversely affect their standing with NSERC or the grant selection committee responsible for reviewing their research grant application. Deferral will, however, enable NSERC to use those funds this fiscal year for more urgent research expenditures.

For information on deferring your next instalment, send an e-mail to our Award Administration section at awdad@nserc.ca.

From the Bench to the Bedside to the Bank

David Dolphin

Dr. David Dolphin is still solving problems – that's what he enjoys most about research. Since the early 1960s, Dr. Dolphin has been studying the structure of porphyrins, biologically active molecules that are a key to many of life's most important processes, including photosynthesis and oxygen transport through the blood. He is a pioneer of biomimetic chemistry, where researchers use a simplified test tube model to study natural processes.

But Dr. Dolphin isn't just a chemist – he's also a very successful entrepreneur. In the early 1980s, Dr. Dolphin teamed up with then UBC microbiologist Dr. Julia Levy, with the aim of creating therapeutic porphyrin-antibody couplings. This research led to the development of Visudyne™, and the establishment of one of Canada's most renowned university spin-off companies, QLT Inc. Today, QLT Inc. employs more than 400 people in North America and had revenues of about US$242 million in 2005. Visudyne™ sales from launch to June 30, 2006, have been over US$2.1 billion. QLT has become a global biopharmaceutical company specializing in developing treatments for eye diseases and dermatological conditions.

Visudyne™ has already helped to save the vision of more than 500,000 people afflicted with "wet" age-related macular degeneration. But that's not enough for Dr. Dolphin – he's still working hard to find new treatment candidates. Since 1990, Dr. Dolphin has held the NSERC-QLT Chair in Photodynamic Therapy at the University of British Columbia. Through the Chair's research program, Dr. Dolphin is now trying to find ways of delivering Visudyne™ to other parts of the body, and developing photodynamic therapies.

QLT Inc. continues to support internationally renowned research at the University of British Columbia through funding of collaborative research efforts. QLT Inc. views this as "giving back to our roots, training the next generation of students and giving other young scientists the opportunity to do what David and Julia have done," says Robert Butchofsky, President and Chief Executive Officer of QLT Inc.

The success of the NSERC-QLT Chair in Photodynamic Therapy has had an impact far beyond the University of British Columbia. Dr. Dolphin serves as a role model for other researchers who want to commercialize the results of their research, and the success of QLT Inc. has helped build the burgeoning biotechnology sector into an important new component of British Columbia's economy.

Today, Dr. Dolphin continues to lead a dynamic research team at the University of British Columbia and inspires innovation in others as the President of the British Columbia Innovation Council. The 2005 winner of NSERC's Gerhard Herzberg Canada Gold Medal for Science and Engineering, Dr. Dolphin will present the inaugural NSERC Herzberg Lecture in Washington, D.C., in spring 2007.

NSERC Pushes for Increased Research Support

NSERC President Suzanne Fortier appeared before the House of Commons Standing Committee on Finance in September with a clear message: Canada's ability to compete in the global marketplace is dependent on increasing current levels of investment in research. Other countries are aggressively expanding their R&D efforts, and Canada risks being left behind.

Dr. Fortier's appearance was in the context of the committee's annual pre-budget public consultations. In her presentation, she argued that current funding levels provide insufficient support for Canada's growing research community. NSERC's written submission called for increases to its budget of $125 million, $125 million and $150 million over each of the next three years. The Council's current budget is $902 million. This would boost Canada's R&D expenditures as a percentage of GDP, which are currently lower than average among OECD countries. The complete written submission can be found at www.nserc.gc.ca/about/toward_a_country_e.pdf.

Members of the research community are encouraged to add their voices to the call for increased research funding by contacting MPs or business leaders.

NSERC would target any new funding to a number of priority areas, including increasing support for new applicants to the Discovery Grants program, research facilities and equipment, the training of students and fellows in industrial settings, and the pursuit of national and international strategic opportunities.

Council News

Joanne Keselman

Barbara Conway

Dr. Joanne Keselman has been reappointed a Member of NSERC's Council for a period of one year ending September 15, 2007. During that time, she will continue to serve as Vice-President of NSERC and a member of the NSERC Executive Committee. She is the Vice-President (Research) at the University of Manitoba.

Barbara Conway, previously with NSERC's Research Grants and Scholarships Directorate, is the newly appointed Corporate Secretary at NSERC.

The Results Are In!

September was a busy month for NSERC as selection panels met to choose the winners in the Strategic Project Grants competition from more than 400 applications. Interpreting the new target area descriptions for the first time added to the lively debates over the merits of the proposals. In the end, 133 projects were funded. More than 300 university faculty will work with almost 200 industry and 70 public sector partnerships to generate new knowledge or technology to enhance Canada's economy, society or environment within the next ten years. Watch for the posting of the updated program literature in January for information about next year's competition. Based on this year's experience, some revisions to the target areas are likely.

Strategic Networks Program Update

A new strategic focus and revised partnership criteria have sparked an increased interest in NSERC networks. Fifty-eight preliminary applications were submitted to the current competition of the Strategic Networks program. These applications were reviewed by the seven Strategic panels at their September meetings and invitations have been extended to 13 applicants to submit full proposals to the 2007 competition. The deadline date for preliminary applications to the next competition is March 30, 2007.

Strategic Projects 2006-07 Competition Summary

Target Area	Number of Appl.	Number of Awards	Success Ratio (%)	Total for Year 1 (millions of $) Requested	Total for Year 1 (millions of $) Awarded
Advanced Communications and Management of Information	46	16	34.8	6.37	2.25
Biomedical Technologies	62	16	25.8	9.33	2.31
Competitive Manufacturing and Value-Added Products and Processes	50	17	34	6.37	2.15
Healthy Environment and Ecosystems	117	25	21.4	18	3.56
Quality Foods and Novel Bioproducts	60	20	33.3	8.12	2.46
Safety and Security	38	16	42.1	5.29	1.91
Sustainable Energy Systems	47	20	42.6	5.75	2.29
New Media	11	3	27.3	1.2	0.39
TOTAL	**431**	**133**	**30.9**	**60.4**	**17.33**

Students Say "Thanks"

NSERC awarded more than 4,300 Undergraduate Student Research Awards (USRAs) to science and engineering students nationwide this year. The 16-week awards, worth $4,500 each, are intended to encourage students to undertake graduate studies and to pursue a research career in those fields.

Here are comments from two of this year's crop of awardees:

[The award] gave me a deeper understanding of research procedures, and I really enjoyed seeing the "other side" of the university – the family-like community environment of professors, graduate students, research assistants, etc. sharing results and ideas and helping each other . . .

The research experience provided me with a unique opportunity to work outside and be active while keeping my mind stimulated at the same time. It also gave me a head start on preparing for my own undergraduate thesis.

– Emily Muller, Faculty of Natural Resources and Environmental Studies, University of Northern British Columbia

Supervisor: Dr. Scott Green, Ecosystem Science and Management Program, University of Northern British Columbia

As the work term progressed, the scope of my project shifted to include GlaxoSmithKline's commitment to access to medicines in third world countries. The opportunity to focus on redesigning solid dose pediatric HIV medicines, while using the knowledge gained from my powder rheology project, seemed to bring my research full circle . . .

NSERC's philosophy in motivating undergrads to continue in research has inspired me to pursue graduate studies upon completion of my B.Sc. I would like to personally thank NSERC for considering me for the USRA grant again.

– Michael T. Hrynyk, Health Sciences, McMaster University

Supervisor: Dr. Amyn Sayani, Pharmaceutical Development Team Leader, GlaxoSmithKline Inc.

Michael Smith Awards for Science Promotion Presented

Ariel Fenster

A chemistry professor and a well-known marine science centre were the recipients of NSERC's Michael Smith Awards for Science Promotion in June, which recognize outstanding achievement in raising public awareness about Canadian research.

The $5,000 individual award went to Ariel Fenster, a McGill University professor who teaches science courses aimed at students who normally study subjects outside science and engineering.

He appears frequently in the media and was chief organizer of the exhibit *La Chimie en fête* on display at Montreal's Old Port, an exhibit seen by more than 370,000 people.

NSERC Executive Vice-President Nigel Lloyd (left), with BMSC staff Jenn Provencher, Anne Stewart, Sarah Tyne and John Holmes.

The Bamfield Marine Sciences Centre (BMSC) in British Columbia earned the $10,000 group award on the strength of its research and public awareness work. Its scientists conduct cutting-edge research in fish physiology, biological oceanography and subtidal ecology, among other fields.

The centre also hosts Oceanlink, a public outreach program through which 4,000 people take part in field trips and other activities each year. The program's Web site, which has classroom learning materials, receives more than 20 million visitors annually.

The Michael Smith Awards are named after the late Canadian biochemist and Nobel laureate in Chemistry. Up to two awards – an individual and a group award – are given each year.

During Breakfast, Parliamentarians Learn About the Danger of Fluoroalcohols

Hamburger wrappers, popcorn bags and other non-stick surfaces contain a toxic chemical that has shown up in humans and even in the bloodstreams of Arctic animals.

These substances, called fluoroalcohols, are generated in the United States but end up in our country nonetheless. This was a danger highlighted by Scott Mabury, the chair of the University of Toronto's chemistry department, during a Bacon and Eggheads lecture October 2.

But Dr. Mabury had good news for the parliamentarians, media and researchers who gathered in Parliament's West Block to hear him speak about his group's world-renowned research. "The take-home message is we largely understand these substances, and government and industry are taking obvious steps to remove them from products such as hamburger wrappers and Teflon," he said.

Fluoroalcohols have a molecular structure that prevents them from mixing with oil and water, which makes them ideal to coat a surface to make sure nothing sticks – everything from medical tubing to pans to Teflon.

Studies have linked these chemicals to animal tumours and reproductive system changes.

"These chemicals redefine persistence," said Dr. Mabury. "They can stick around for 1,000 years or possibly longer. Most substances only survive for a few hours or days."

These substances first hit the public radar in 2000, when the company that makes Scotchguard – a well-known stain and water repellant – reduced the number of bonds in its product. Only a year after Scotchguard implemented this change, Dr. Mabury said, an Environment Canada survey showed Arctic seals had less of that type of fluoroalcohol in their blood.

Dr. Mabury said Canada is doing its part to reduce the number of fluoroalcohols coming into the country. In June 2006, Environment Canada added four fluoroalcohols to its list of toxic substances under the Canadian Environmental Protection Act.

The United States' Environmental Protection Agency is considering classifying fluoroalcohols as a human carcinogen.

Dr. Mabury says governments can go further and find alternative substances that use chains that are easier to break apart.

The Bacon and Eggheads breakfast series, which features prominent Canadian scientists and engineers, is held monthly while Parliament is in session. NSERC co-sponsors the breakfasts, along with the Partnership Group for Science and Engineering (a Royal Society umbrella group of more than 20 science and engineering organizations) and the Speakers of the House of Commons and the Senate. The aim is to help Parliamentarians learn about science in a non-partisan way.

NSERC Hosts OECD Workshop

On September 28 and 29, NSERC, in cooperation with the Austrian Federal Ministry of Education, Science and Culture and the Organisation for Economic Cooperation and Development (OECD), hosted a Workshop on the status of Women in Science, Engineering and Technology (SET). The workshop, which was held in Ottawa, focused on the development of strategies for the emerging global workforce. It was aimed at bringing together key decision makers in academia, industry and government from over 20 countries around the world and promoting discourse on such subjects as:

- the relationship between gender and science;
- gender budgeting and mainstreaming approaches;
- past strategies, programs and policies implemented with the goal of addressing barriers and issues faced by women; and
- the evaluation and analysis of past policy implementations.

Key speakers included Dirk Pilat, Head of the Science and Technology Policy Division at OECD, Stephanie Monroe, Assistant Secretary for Civil Rights at the U.S. Department of Education, and Susanne Baer, Vice-President, Academic and International Affairs, at Humboldt University in Germany.

NSERC's interest in co-hosting this event was to discuss programs and initiatives from other jurisdictions to help improve its own programs that focus on attracting and retaining women in science and engineering.

Further information on the workshop may be found at www.oecd.org.

The 2006 NCE Conference: "Mobilizing Research Excellence, Creating Value"

On Tuesday, December 5, Networks of Centres of Excellence (NCE) senior executives, researchers, and partners will gather at the Ottawa Congress Centre to share best practices and successes in turning research results into public policies and transferring knowledge and technologies to Canadian industries.

The NCE conference will consist of a number of open sessions for senior government officials and other interested parties. This will include a facilitated "blue sky" discussion on the next generation of NCEs, and an afternoon plenary session on enhancing Canadians' quality of life, informing policies and regulations, and improving economic prosperity.

During the Awards Lunch, winners of the NCE awards will be honoured: the **NCE Young Innovator Awards** recognize Canada's young entrepreneurs by honouring outstanding individuals who, with the help of their network, have been successful in transferring their innovative research to a business, process, or service to benefit society at large; and the **Chairs' Award** recognizes a network researcher who, with the support of his or her network, has contributed to achieving NCE goals, mobilizing the excellence of Canada's research talent in the academic and private sectors, and achieving economic and social benefits for Canadians.

The NCE annual meeting is an opportunity for NCE leaders to get together and share the advances and the impacts of their collaborative research in engineering and health, and in the social and natural sciences. This year's conference promises to chart new ways for the future.

International News

The **Human Frontier Science Program** (HFSP) awards Research Grants and Fellowships in support of international collaborations in basic research. The program places emphasis on novel, innovative and interdisciplinary approaches to fundamental investigations in the life sciences, focused on the complex mechanisms of living organisms. The next call for HFSP Research Grants will likely be announced in December, with submissions due in March 2007 (www.hfsp.org).

ERA-CAN is a collaborative, international initiative to increase science and technology cooperation between Canada and the European Research Area (ERA). It is jointly funded by the European Commission (6th Framework Program) and Canada and has a total budget of $1.3 million over three years, beginning in 2006. It provides a series of services and activities to increase the quality, quantity, profile and impact of S&T co-operation between research organizations in Canada and Europe (www.era-can.ca).

The **Marie Curie Incoming International Fellowships**, one of many Marie Curie Actions, were created to build a foundation for future international collaborations by attracting young, first-class researchers from non-European countries to work in Europe's most distinguished research centres. The next calls for Marie Curie Actions are expected to be announced shortly after the launch of the 7th Framework Program (March 2007), the European Union's chief instrument for funding scientific research and technological development over the period 2007 to 2013.

New Supplements Aimed at Supporting Excellence in Research

NSERC is launching a new component to its Discovery Grants program entitled "Discovery Accelerator Supplements."

The supplements are aimed at researchers who have the capacity to undertake significant additional research if provided with additional resources. They will allow some of the best researchers in Canada to accelerate their research, potentially leading to significant contributions or advances in their respective research area.

Up to fifty supplements will be awarded annually, starting in 2007-08, each valued at up to $120,000 over the course of three years.

Researchers will not have to apply for the supplement. Rather, each year during the annual competition for Discovery Grants, Grant Selection Committees will nominate a small number of applicants for the supplements. The nominations will go to an interdisciplinary committee, which will make the final recommendations to NSERC's President.

More details will be posted on NSERC's Web site in the coming weeks.

Science Promoter Wins Book Award

Barry Shell, a Vancouver science author, won the NSERC-sponsored Canadian Science Writers' Association (CSWA) 2005 Science in Society Youth Book Award on June 24 for his book *Sensational Scientists*.

Barry Shell accepts his award from Lucinda Boucher.

The book, geared to late elementary and high school children and based upon Shell's work on the Web site science.ca, features profiles of 24 Canadian scientists. Several of the scientists are former or current NSERC grantees, such as mathematician Henri Darmon.

Lucinda Boucher, NSERC's Director of Communications, presented Mr. Shell with the $1,000 award during the CSWA Annual Awards Gala held in St. John's, N.L.

He was previously nominated for the 2005 Michael Smith Award, which also honours individuals and groups who contribute to promoting Canadian science.

New Program Supports Graduate Students in Quebec

NSERC and the Fonds Québécois de la Recherche sur la Nature et les Technologies (FQRNT) have created a new Industrial Innovation Scholarships program. The scholarships will provide support for master's and doctoral students registered at Quebec universities who wish to undertake graduate studies in collaboration with industrial partners. Within the next three years, a total of 210 scholarships will be awarded; once the program is fully implemented, approximately 110 new scholarships will be awarded per year.

The scholarships have been modelled after NSERC's Industrial Postgraduate Scholarships. Thanks to the additional funds that will be invested in the new program as a result of FQRNT's participation, the number of awards distributed in Quebec will be doubled. The industrial experience students will gain is aimed at providing them with important technical and professional skills, and encouraging them to consider a research career in industry.

A distinct feature of the program is the "contribution to training" element – a one-time monetary contribution to be used to complement the training of the student and/or to facilitate his or her integration into the industrial environment. In addition, to address the need for highly qualified personnel in certain key sectors in Quebec, companies within these sectors will be able to apply for a quota of scholarships to be set aside and used within a given time frame.

New Innovation Platform Focuses on Quantum Computing

The newest NSERC Innovation Platform will help keep Canada at the forefront of information and communications technology. NSERC Executive Vice-President Nigel Lloyd officially launched the QuantumWorks Innovation Platform at an event held in September in Waterloo.

Headquartered at the Institute for Quantum Computing at the University of Waterloo, QuantumWorks will receive almost $5 million in funding from NSERC over five years. It will conduct groundbreaking research into the intricacies of quantum information processing, which is expected to be the next big innovation opportunity in information processing.

As electronic devices continue to shrink, interactions between individual components will take place at the atomic level. Making such devices function requires understanding and controlling the processes of quantum physics.

In addition to the University of Waterloo, the project's partners include four other universities, a number of prominent high-tech firms, and several government agencies.

Innovation Platforms are intended to kick-start research in an area that demonstrates emerging strategic importance. This is the third platform funded by NSERC since the program's inception in 2001.

Everything You Need to Know About Collaborative Research and Development Grants

Editor's Note: This article appeared in the November 2005 issue of Contact *(which was available on the Web only). Figures have been updated to provide current information.*

Partnering with a Canadian-based company is one of the best ways to see your ideas transformed into tangible benefits for Canada's economy and to give students and postdoctoral fellows an edge in developing new skills for post-university employment.

One of the most flexible and accessible vehicles for partnering is the NSERC Collaborative Research and Development (CRD) program. It's attractive to both professors and companies, and offers excellent leverage because NSERC will match, dollar for dollar, the private-sector net cash contribution to the project. In-kind contributions will also be considered for matching if they are deemed essential to the project and represent a direct incremental cost to the company. For example, eligible for inclusion are the *costs* incurred to produce specialized samples and the salary *costs* of company staff who work directly on the project.

The over-arching expectation is that benefits of the project will be realized in Canada. Any Canadian-based company, or multi-national with research or manufacturing activities based here, is eligible as a partner. Canadian industry associations and consortia may also be eligible, while organizations supported exclusively through government funds are not. If you are unsure about the eligibility of a potential partner, NSERC staff will be pleased to advise you.

NSERC staff will also help out by playing an active role during the review process. They will review your draft applications, as well as contact you for additional information to answer questions from external expert referees.

Large CRDs (over $150,000 requested in the first year) are reviewed not only by external referees, but also by the Advisory Committee on University-Industry Grants. This Committee, which comprises academic, government and industry researchers, sees about 50 applications each year. What are the most frequent deficiencies they see? The "economic benefit to Canada" criterion is not adequately addressed, and the in-kind contributions are over-inflated or poorly justified.

Contact Editor Retires

After working in the Public Service for 36 years, and serving NSERC in various capacities for 27 of those years, *Contact's* Editor-in-Chief, Joyce French, is retiring. In addition to her role with *Contact*, Joyce has worked tirelessly as senior English editor to ensure the high quality of NSERC publications and has managed the NSERC SPARK program since its inception in 1999. While her editing skills and knowledge of NSERC will be missed, we wish her all the best as she enters this new phase in her life. Thank you Joyce!

Did You Know?

(data from NSERC surveys and other sources)

- The access to new ideas, the updating of knowledge, and the training of students and postdoctoral fellows are the top three benefits identified by university and industry participants.
- A single CRD project trains seven students and postdoctoral fellows in skills relevant to industry.
- Almost all respondents said that they would participate in another CRD project.
- Applicants need not hold a Discovery grant to be eligible to apply.
- The success rate for CRD applications is attractive. In 2005-06, about 80 per cent of the 310 applications reviewed by NSERC were approved for funding.
- The project can be at any stage along the R&D spectrum, as long as the project has industrial relevance.
- One or more Canadian-based companies can be partners on a single application.
- NSERC often makes funding decisions in less than three months from submission of a complete application.

The finalization of the Research Agreement (an essential pre-requisite for release of funds) is reported by applicants as the most time-consuming stage.

CRD Summary Information

Purpose: To encourage collaborations resulting in economic benefits to Canada.

Deadlines: Any time.

Criteria: (1) Scientific merit; (2) Research competence; (3) Industrial relevance; (4) Private-sector support; (5) Contribution to training; (6) Benefit to Canada.

Application Procedures: Forms 100, 101 and 183A (Orgs. Info. for RPP) can be submitted using the on-line system. Decisions are usually made within 3-5 months of NSERC receiving a complete application.

Success Rate: 81%.

Average Grant: $51,600.

Number of years: 1 to 5, most common request for 3 years.

Program Budget: $37 million.

For more information, contact Lynda Wood, CRD Program Coordinator, at 613-944-4570 or lynda.wood@nserc.ca.